signal corresponding to the keyboard layout image can be transmitted to the CPU **12** of the computer **10** to execute the keyboard input function corresponding to the keyboard layout image. The definition of the keyboard layout image on the touch display device may be stored in a memory **18**, and it may be retrieved for use on demand. In the present invention, the touch display device **16** is imparted with a keyboard input function, and accordingly the computer system may need a display device **19** for displaying output images from the execution of ordinary programs in the computer; or an image display region may be further defined on the touch display device **16** for displaying output images from the execution of ordinary programs in the computer.

[0018] FIG. **2** is a schematic diagram illustrating an embodiment of the keyboard formed from a touch display panel according to the present invention. The touch display device **20** has a touch display panel **22** and may further have a power switch **24**, a hot key **26**, a cable **28**, and a speaker **30**. The touch display panel **22** may be a conventional touch display panel such as an optical, ultrasonic, infrared, resistive, or capacitive touch display panel, and the like, and may be multi-touch type, without particular limitations. The signal input/output may be accomplished by using the cable **28** to connect with the computer for input the signals to the computer. The transmission may be through RS232, USB, or wireless transmission, without particular limitations. One or more hot keys may be proposed as desired. FIG. **3** illustrates an embodiment of switching between the keyboard function **32** and the display function **34** through a hot key in the present invention.

[0019] Furthermore, a plurality of touch display devices may be connected in series to form an integrated keyboard (working as a single keyboard) through definition by a program. For example, as shown in FIG. **4**, the touch display devices **36**, **38** each have a serial connecting device **40** at each of two sides and connect to each other in series. For example, wireless transmission, USB transmission, or the like may be utilized to accomplish the serial connection.

[0020] A feedback device, such as a device for key-pressing feeling or a sound device, may be further disposed in the touch display device. For example, the device for key-pressing feeling may be a vibration device to simulate the key-pressing feeling when a finger is touching the key image shown by the display. The vibration device may be accomplished by a micro-vibration or micro-electron flow mechanism of microelectromechanical systems (MEMS). Or, as soon as the computer receives an input signal from the keyboard formed from the touch display device, a speaker may give off a sound to simulate a key click sound for the touch.

[0021] The operating program which is executed by the CPU may be written by utilizing, for example, a package program included in the operating system (such as VISTA) of Microsoft Company for screen division, a driving program for driving the touch display device, and the like. The operating program is used to arrange keys on the corresponding positions of the touch display device and may be stored in the memory. It allows users to define positions on the touch display panel to correspond to certain signals as desired, and the touch display device is allowed to display image patterns corresponding to the certain signals. For example, as shown in FIG. **5**, a keyboard layout image, such as a conventional keyboard layout image, defined by a user is schematically shown in the keyboard region **42** of the display panel of the touch display device, and a function corresponding to the image will be executed in accordance with the position of the image being touched. For example, when the position for the image pattern, letter "B", is touched, a signal or signals corresponding to "B" are generated and outputted for transmission to the computer for serving a function as equivalent as a keyboard.

[0022] In addition to the definition of the image of the conventional keyboard as shown in FIG. **5**, an image for mouse function may be further defined on the touch display device, as shown by the mouse region **44** in FIG. **5**. Additionally, in the function key region **46**, certain images may be given to the position representing certain function keys for helping users to know the functions of the function keys. For example, the position of the function key "F5" may be made to display a word pattern "rearrangement" or an image pattern having the same meaning, such that a user will easily know to touch the position for executing the function of rearranging web page as soon as casting a glance at the pattern without deliberate memorization of the function for "F5".

[0023] As described above, users may define keyboard by themselves as desired. For example, users from different countries may define a keyboard displaying their mother language for each key with the key images together. Conventional keyboard needs to be printed with a country language letters or characters according to the country where the keyboard is sold. The definition of keyboard of the present invention is also modifiable by users as desired. Furthermore, a hot key may be defined to represent multiple keys or a set of keys. A special key can be also defined. For example, such special key may be a small pattern shown on the display to be defined as an application program in execution, and when the small pattern on the display is touched in the keyboard function mode, users may conveniently switch to the application program.

[0024] For music keyboard users, a plurality of the touch display devices may be further connected in series to form an integrated keyboard (which may be long) to define complicated music keys such as keys for musical scales, accompaniments, sound effects, and the like for variant instruments. It may be like to form an electronic musical instrument, synthesizer or musical workstation, which keys can be arranged by users without being limited to a commercial fixed arrangement.

[0025] In another aspect of the present invention, a circuit board may be disposed in a touch display device, such that the touch display device may be turned on to serve as a keyboard even being off-line from the computer. Accordingly, the touch display device includes, in addition to a touch display panel unit and a signal input/output device for signal input/output, a memory for storing a driving program and an operating program, and a microprocessor for executing the driving program to drive the touch display panel unit, executing the operating program to allow the touch display panel unit to display a keyboard layout image, and through the signal input/output device outputting a signal corresponding to the keyboard layout image in accordance with the position on the touch display panel unit being touched. The circuit board may be disposed within the frame of the touch display device. When the touch display panel unit requires a backlight module, the driving circuit for the backlight module may be integrated with the aforesaid circuit board for providing a working voltage to the backlight. Variant keyboard functions on the touch display panel unit may be defined by program execution in the microprocessor. The memory may be a built-in or